UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF COLUMBIA

OAK RIDGE ENVIRONMENTAL PEACE ALLIANCE,
315 Mayflower Drive
Knoxville, TN 37920,

NUCLEAR WATCH OF NEW MEXICO,
903 W. Alameda #325
Santa Fe, NM 87501,

NATURAL RESOURCES DEFENSE COUNCIL,
1152 15th St. NW, Suite 300
Washington, D.C. 20005

RALPH HUTCHISON,
315 Mayflower Drive
Knoxville, TN 37920,

ED SULLIVAN,
103 Oneida Lane
Oak Ridge, TN 37830,

JACK CARL HOEFER,
12018 Couch Mill Road
Knoxville, TN 37932,

LINDA EWALD,
949 Ponder Road
Knoxville, TN 37923,

Plaintiffs,

v.

JAMES RICHARD PERRY, SECRETARY,
UNITED STATES DEPARTMENT OF ENERGY,
1000 Independence Ave. SW
Washington, D.C. 20585,

FRANK G. KLOTZ, ADMINISTRATOR,
NATIONAL NUCLEAR SECURITY ADMINISTRATION
1000 Independence Ave. SW
Washington, D.C. 20585,

Defendants.

Civil Case No.

COMPLAINT FOR INJUNCTIVE AND DECLARATORY RELIEF

COMPLAINT FOR INJUNCTIVE AND DECLARATORY RELIEF

1. This case concerns grave risks that the National Nuclear Security Administration ("NNSA") is taking—but failing to consider—regarding the safety and potential environmental impacts of America's nuclear weapons program, in violation of the National Environmental Policy Act ("NEPA"), 42 U.S.C. §§ 4321–4370f. In particular, this case challenges the NNSA's refusal to prepare a Supplemental Environmental Impact Statement ("SEIS") to consider important new information about the serious vulnerability of a new design for a Uranium Processing Facility ("UPF") at the Y-12 National Security Complex ("Y-12") in Oak Ridge, Tennessee. This new design is significantly different from the one the agency chose to analyze in 2011. Most importantly, the NNSA decided to save money on the modernization of the aging Y-12 Complex by not building a single new building to house the entire UPF, but instead constructing several new buildings and continuing to use old and increasingly deteriorating buildings for processing nuclear weapons components. This case challenges the NNSA's plans to implement this major change in the UPF design without considering in a NEPA analysis crucial new information about the increased odds of large earthquakes and the risk that such an earthquake may cause these decrepit buildings to collapse or even explode. This case also challenges the NNSA's failure to consider whether the ongoing use of these old and vulnerable buildings may impede efforts to clean up extensive prior contamination, which has led to the entire Y-12 Complex being listed as a Superfund site—but never completely cleaned up—for over 25 years. The NNSA's refusal to consider this important new information places the environment, local communities, and national security in grave peril and violates NEPA and the Administrative Procedure Act ("APA"), 5 U.S.C. § 706(2).

JURISDICTION AND VENUE

2. This Court has jurisdiction over this action pursuant to 28 U.S.C. § 1331, and venue is proper pursuant to 28 U.S.C. § 1391.

PARTIES

3. Plaintiff Oak Ridge Environmental Peace Alliance ("OREPA") is a 501(c)(3) nonprofit organization headquartered in Oak Ridge, Tennessee. OREPA's mission is to monitor and inform the public about the production of nuclear weaponry at the Y-12 Complex, to protect the local environment and local communities from harm caused by prior and ongoing production of nuclear weapon components at Y-12, to use non-violent and lawful means to advocate for the end of such production at Y-12, and ultimately to achieve a world that is free from the threat of nuclear weapons.

4. Plaintiff OREPA submitted a detailed petition (the "Oak Ridge Petition" or "Petition") to the NNSA requesting preparation of an SEIS on its new design of the Y-12 modernization project and specifically identifying important new information and issues for the agency to consider. NNSA provided a cursory response, declining to prepare an SEIS but failing to consider any of the issues or information provided in OREPA's petition.

5. The NNSA's rejection of OREPA's Petition and refusal to consider the information and issues raised in the Petition harm OREPA's organizational interest and the interests of its members in protecting the environment and local communities from harm caused by prior and ongoing production of nuclear weaponry at Y-12. The harms to OREPA's interests include the risk of a catastrophic collapse of aging buildings containing nuclear weaponry or components of nuclear weaponry, which would likely result in the release of nuclear or toxic

materials, placing the environment and local residents in extreme peril. The harms to OREPA's interests also include the reduced ability of the federal government to conduct necessary cleanups of legacy contamination that has accumulated over the course of decades of nuclear weapon production at Y-12, and which the Department of Energy's Inspector General has stated poses "ever-increasing levels of risk" to workers and the public. The harms to OREPA's interests also include the deprivation of environmental information and analysis to which it is legally entitled, and denial of the opportunity for informed public participation that is a cornerstone of the NEPA process.

6. Plaintiff Nuclear Watch of New Mexico ("Nuclear Watch") is project of the Southwest Research and Information Center, a 501(c)(3) nonprofit organization based in Albuquerque, New Mexico. Nuclear Watch's mission is to use research, public education, and effective citizen action to promote safety and environmental protection at nuclear facilities, including the Y-12 Complex, to advocate for the cleanup of nuclear weapons production facilities, and to advocate for U.S. leadership toward a world free of nuclear weapons.

7. Along with Plaintiff OREPA, Plaintiff Nuclear Watch submitted the detailed Oak Ridge Petition to the NNSA requesting the production of an SEIS for the new design of the Y-12 modernization project and specifically identifying issues and important new information for the agency to consider. The NNSA provided a cursory response, declining to prepare an SEIS but failing to consider any of the issues or information provided in the Petition.

8. The NNSA's rejection of OREPA and Nuclear Watch's Petition and refusal to consider the information and issues raised in that petition harm Nuclear Watch's organizational interest and the interests of its members in protecting the environment and local communities from harm caused by prior and ongoing production of nuclear weaponry at the Y-12 Complex.

The harms to Nuclear Watch's interests include the risk of a catastrophic collapse of aging buildings containing nuclear weaponry or components of nuclear weaponry, which would likely result in the release of nuclear or toxic materials, placing the environment and local residents in extreme peril. The harms to Nuclear Watch's interests also include the reduced ability of the federal government to conduct necessary cleanups of legacy contamination that has accumulated over the course of decades of nuclear weapon production at Y-12. The harms to Nuclear Watch's interests also include deprivation of environmental information and analysis which it is entitled to receive under NEPA, and denial of the opportunity for informed public participation that is a cornerstone of the NEPA process.

9. Plaintiff Natural Resources Defense Council ("NRDC") is a national, non-profit environmental and public-health organization with hundreds of thousands of members. NRDC engages in research, advocacy, media, and litigation related to protecting public health and the environment. NRDC's mission includes preventing health threats posed by the release of hazardous materials to the environment. Plaintiff NRDC brings this action on its own behalf and on behalf of its members, including members who live in Oak Ridge, Tennessee and Knoxville, Tennessee, and whose health will be put at risk in the event that an earthquake causes a release of hazardous radiological materials from the Y-12 Complex.

10. The harms to Plaintiff NRDC and its members include the risk of an earthquake-induced collapse of aging buildings containing nuclear weaponry or components of nuclear weaponry, which would likely result in the release of nuclear or toxic materials, placing the environment and local residents in extreme peril; the reduced ability of the federal government to conduct necessary cleanups of legacy contamination that has accumulated over the course of decades of nuclear weapon production at Y-12; and the deprivation of environmental information

and analysis which they are entitled to receive under NEPA, and denial of the opportunity for informed public participation that is a cornerstone of the NEPA process

11. Plaintiff Ralph Hutchison is the Coordinator for Plaintiff OREPA and a resident of Knoxville, Tennessee whose home is located within 25 miles of the Y-12 Complex, well within the 50-mile radius that the NNSA has recognized would be affected by the release of radiological materials from the Y-12 Complex. Mr. Hutchison began working with OREPA in 1988 as a volunteer and became a staff member at OREPA in 1990. As OREPA's only Coordinator, Mr. Hutchison is responsible for organizing many of OREPA's activities, such as its efforts to prepare comments and solicit public comments on activities relating to the Y-12 facility and to promote attendance at public hearings related to Y-12. Mr. Hutchison also attends weekly vigils at the entrance to the Y-12 Complex, at which OREPA discusses issues relating to the dangers of the Complex and the dangers of nuclear weapons. Mr. Hutchison is also a member of NRDC.

12. Mr. Hutchison has been familiar with the Y-12 Complex since 1988, has toured the Complex on at least ten occasions, and has actively participated in preparing and submitting comments during many administrative decision-making processes related to Y-12. Mr. Hutchison has served on several federal and state advisory boards related to Y-12, such as a "Federal Facilities Environmental Restoration Dialogue Committee" convened by the Environmental Protection Agency in the 1990s, as well as the Oak Ridge Health Agreement Steering Panel sponsored by the State of Tennessee. Mr. Hutchison was the principal author of comments submitted by OREPA during the NEPA process for the NNSA's design of a Uranium Production Facility at Y-12. On behalf of OREPA, Mr. Hutchison signed the Oak Ridge Petition requesting that the NNSA prepare an SEIS for its re-design of the UPF.

13. Mr. Hutchison is deeply concerned about existing contamination at Y-12, especially mercury contamination. Mr. Hutchison is concerned that every time a heavy rain falls in Oak Ridge, the level of mercury in the East Fork Poplar Creek, which drains Y-12, exceeds EPA drinking water standards, and he is also concerned that the level of mercury in this creek always exceeds limits for chronic exposure to biota, harming wildlife.

14. Mr. Hutchison is also profoundly concerned about the prospect that a large earthquake could cause a catastrophic loss of containment of nuclear materials from aging, degrading facilities at Y-12. Mr. Hutchison is deeply concerned that such an event could release uranium dust or other radiological or toxic material and expose many local residents, including himself and his family, to harmful radiation.

15. The NNSA's rejection of OREPA and Nuclear Watch's Petition and refusal to consider the issues and information raised in that petition in an SEIS harm Mr. Hutchison's interests. The harms to Mr. Hutchison include the risk of a catastrophic collapse of aging buildings containing nuclear weaponry, special nuclear materials, or components of nuclear weaponry, which risks the release of nuclear or toxic materials, placing him and other local residents in extreme peril. The harms to Mr. Hutchison also include the reduced ability of the federal government to conduct necessary cleanups of legacy contamination that has accumulated over the course of decades of nuclear weapon production at Y-12. The harms to Mr. Hutchison also include deprivation of environmental information and analysis which he is entitled to receive under NEPA, and denial of the opportunity for informed public participation that is a cornerstone of the NEPA process.

16. Plaintiff Ed Sullivan is a resident of Oak Ridge, Tennessee whose home is located less than 5 miles from the Y-12 Complex, well within the 50-mile radius that the NNSA has

recognized would be affected by the release of radiological materials from the Y-12 Complex. Mr. Sullivan served on OREPA's Board of Directors until December 2016 and has worked with OREPA for roughly 15 years. Mr. Sullivan attends OREPA's vigils at the entrance to the Y-12 Complex. Mr. Sullivan is also a member of NRDC.

17. Mr. Sullivan is deeply concerned about existing contamination at the Y-12 Complex and about the risk of an earthquake causing a catastrophic nuclear accident at Y-12. Due to concerns about mercury contamination from the runoff at Y-12, Mr. Sullivan avoids fishing in local streams or lakes. Mr. Sullivan is especially concerned about the prospect that an earthquake risks a nuclear accident at Y-12, especially since the Complex is located so close to his home. Mr. Sullivan worries that he and his wife could be killed in the event that such an accident were to occur, and that if he survived, the resulting radiological contamination would likely sicken him and his wife as well as contaminating the air, water, and soil.

18. The NNSA's rejection of OREPA and Nuclear Watch's Petition and refusal to consider the issues and information raised in that petition harm Mr. Sullivan's interests. The harms to Mr. Sullivan include the increased risk of a catastrophic collapse of aging buildings containing nuclear weaponry or components of nuclear weaponry, which would likely result in the release of nuclear or toxic materials, placing him and other local residents in extreme peril. The harms to Mr. Sullivan also include the reduced ability of the federal government to conduct necessary cleanups of legacy contamination that has accumulated over the course of decades of nuclear weapon production at Y-12. The harms to Mr. Sullivan also include deprivation of environmental information and analysis which he is entitled to receive under NEPA, and denial of the opportunity for informed public participation that is a cornerstone of the NEPA process.

19. Plaintiff Jack Carl Hoefer is a resident of Knoxville, Tennessee whose home is located roughly 5 miles from the Y-12 Complex, well within the 50-mile radius that the NNSA has recognized would be affected by the release of radiological materials from the Y-12 Complex. Mr. Hoefer is a retired teacher who has been an active supporter of OREPA for roughly a decade. Mr. Hoefer regularly attends OREPA's vigils at the Y-12 Complex entrance and also attends other OREPA events, such as public hearings related to activities at Y-12.

20. Mr. Hoefer is profoundly concerned about existing contamination at the Y-12 Complex and about the risk of an earthquake causing a catastrophic nuclear accident at Y-12. At personal expense, Mr. Hoefer filters the water for his home because of his fear about exposure to contamination from the nearby Y-12 Complex. Mr. Hoefer has also ceased harvesting watercress from local waterways due to contamination from Y-12. Mr. Hoefer is also profoundly concerned about an earthquake triggering a nuclear accident at Y-12, especially since the Complex is so near to his home, and he worries that such an accident could kill or sicken him and his family.

21. The NNSA's rejection of OREPA and Nuclear Watch's Petition and refusal to consider the information and issues raised in that petition harm Mr. Hoefer's interests. The harms to Mr. Hoefer include the risk of a catastrophic collapse of aging buildings containing nuclear weaponry or components of nuclear weaponry, resulting in the release of nuclear or toxic materials, placing him and other local residents in extreme peril. The harms to Mr. Hoefer also include the reduced ability of the federal government to conduct necessary cleanups of legacy contamination that has accumulated over the course of decades of nuclear weapon production at Y-12. The harms to Mr. Hoefer also include deprivation of environmental information and

analysis which he is entitled to receive under NEPA, and denial of the opportunity for informed public participation that is a cornerstone of the NEPA process.

22. Plaintiff Linda Susan Ewald is a member of OREPA's Board of Directors and has been active with OREPA since the late 1980s. Ms. Ewald is a resident of Knoxville, Tennessee, and her home is roughly 15 miles from the Y-12 Complex, well within the 50-mile radius that the NNSA has recognized would be affected by the release of radiological materials from the Y-12 Complex. Ms. Ewald regularly attends OREPA's events, and has been a regular attendee of OREPA's vigils at the Y-12 Complex entrance. As a member of OREPA's Board of Directors, Ms. Ewald is responsible for contributing to decisions about OREPA's activities, including the scope and nature of comments on activities at Y-12.

23. Ms. Ewald is profoundly concerned about existing contamination at the Y-12 Complex and about the risk of an earthquake causing a catastrophic nuclear accident at Y-12. Ms. Ewald is particularly concerned about buried hazardous and nuclear waste at Y-12 causing groundwater contamination, especially in light of recurring discoveries of additional hazardous waste at the Complex. Ms. Ewald is also deeply concerned about the risk of an earthquake causing a significant nuclear accident at Y-12, thereby killing or sickening local residents including Ms. Ewald, particularly in light of the aging nature of the buildings in the Complex and the fact that the area was recently revealed to have higher odds of a large earthquake than previously recognized.

24. The NNSA's rejection of OREPA and Nuclear Watch's petition and refusal to consider the issues and information raised in that petition harm Ms. Ewald's interests. The harms to Ms. Ewald include the risk of a catastrophic collapse of aging buildings containing nuclear weaponry or components of nuclear weaponry, resulting in the release of nuclear or toxic

materials, placing her and other local residents in extreme peril. The harms to Ms. Ewald also include the reduced ability of the federal government to conduct necessary cleanups of legacy contamination that has accumulated over the course of decades of nuclear weapon production at Y-12. The harms to Ms. Ewald also include deprivation of environmental information and analysis which she is entitled to receive under NEPA, and denial of the opportunity for informed public participation that is a cornerstone of the NEPA process.

25. A court order declaring unlawful the NNSA's refusal to prepare an SEIS and requiring the agency to prepare an SEIS would protect all Plaintiffs' interests, because if the agency must consider the issues and information presented in OREPA's petition and thoroughly analyze its decision in compliance with NEPA, it may reach a different outcome.

26. Defendant James Richard Perry is the Secretary of the United States Department of Energy ("DOE"), the parent agency of the NNSA, and is thus responsible for the decision challenged here.

27. Defendant Frank G. Klotz is the Under Secretary for Nuclear Security and the Administrator of the NNSA, and is thus responsible for the decision challenged here.

FACTS GIVING RISE TO PLAINTIFFS' CLAIMS

A. STATUTORY AND REGULATORY BACKGROUND.

28. Congress enacted NEPA to ensure that federal agencies fully consider the environmental impacts of their actions before taking them, to ensure that agencies consider alternatives to proposed actions that may have less adverse environmental impacts, and to ensure that agencies make information publicly available with sufficient quantity and clarity to promote fully informed public participation in agency decision-making.

29. To meet these objectives, all agencies must prepare an Environmental Impact Statement ("EIS") for any major federal action that may "significantly affect" the environment. 42 U.S.C. § 4332(C). An EIS must include "a detailed statement" about a proposed action's environmental impact and a reasonable range of alternative actions and their environmental impacts. *Id*. An EIS "shall provide a full and fair discussion of significant environmental impacts and shall inform decisionmakers and the public of the reasonable alternatives which would avoid or minimize adverse impacts." 40 C.F.R. § 1502.1. An EIS must "[r]igorously explore and objectively evaluate all reasonable alternatives, and for alternatives which were eliminated from detailed study, briefly discuss the reasons for their having been eliminated." *Id.* at § 1502.14.

30. Public engagement in agency decision-making is one of NEPA's principal goals. To that end, NEPA's implementing regulations require EISs to "be written in plain language … so that … the public can readily understand them." *Id.* at § 1502.8. Additionally, an agency preparing an EIS must "[r]equest comments from the public, affirmatively soliciting comments from those persons or organizations who may be interested or affected." *Id.* at § 1503.1(a)(4). The agency must also consider and respond to public comments. *Id.* at § 1503.4. In response to public comments, the agency may modify the project, amend the EIS, or if it disagrees with a comment, "[e]xplain why the comments do not warrant further agency response, citing the sources, authorities, or reasons which support the agency's position." *Id.* at 1503.4(a).

31. NEPA's implementing regulations provide that if "[t]here are significant new circumstances or information relevant to environmental concerns and bearing on the proposed action or its impacts," the agency "[s]hall prepare" a supplement to its draft or final EIS. 40 C.F.R. § 1502.9(c)(1)(ii).

32. The DOE's own NEPA regulations also state that the Department "shall prepare a supplemental EIS if there are substantial changes to the proposal or significant new circumstances or information relevant to environmental concerns." 10 C.F.R. § 1021.314(a). DOE's regulations further state that an agency "may supplement a draft EIS or final EIS at any time, to further the purposes of NEPA," *id.* § 1021.314(b), which include both full analysis of environmental impacts and public participation in agency decisionmaking. DOE's regulations also state that "[w]hen it is unclear whether or not an EIS supplement is required, DOE shall prepare a Supplement Analysis" ("SA"). *Id.* §1021.314(c). An SA "shall discuss the circumstances that are pertinent to deciding whether to prepare" an SEIS and "shall contain sufficient information for DOE to determine whether . . . [a]n existing EIS should be supplemented; [a] new EIS should be prepared; or [n]o further NEPA documentation is required." *Id.*

B. <u>The Y-12 National Security Complex</u>

33. The Y-12 Complex was built as part of the Manhattan Project and remains the nation's primary site for processing and storing highly enriched uranium for use in nuclear weapons. Y-12 is the only site at which the United States produces certain components of nuclear weapons, including so-called "secondaries," which initiate the fusion reaction in a nuclear explosion, and "cases," which house both the secondaries and other bomb components. (Other nuclear weapon components, including so-called "primaries," which trigger the explosion of secondaries, are produced and processed at other facilities.) The Y-12 facility is also a site where nuclear weapons secondaries are dismantled, and where nuclear materials are processed and stored.

34. The processing of nuclear materials at Y-12 currently occurs in multiple buildings, many of which are old and increasingly dilapidated. As the NNSA itself stated, "[m]ission-critical operations are scattered across multiple 40- to 60-year-old facilities. The facilities are oversized, contain technologically obsolete equipment of low reliability, and require excessive maintenance to maintain minimum capability. Much of the critical infrastructure is approaching or is beyond the expected design life . . . ." Indeed, according to the NNSA, over 70% of the floor space at Y-12 was built before 1950 as part of the Manhattan Project, and 85% of the "mission critical" facilities at Y-12 are over 40 years old. Many of these old buildings do not meet modern building codes and standards or modern fire codes, and consequently are at significant risk in the event of a natural disaster such as an earthquake. Despite the fact that Y-12's aging facilities are, according to NNSA, "old, oversized, and inefficient," these aging facilities continue to host activities critical to the processing of nuclear weaponry at Y-12.

35. The Y-12 Complex's aging buildings are scattered across what the NNSA describes as "a sprawling industrial complex" where the processing of highly enriched uranium is "decentralized in several buildings that are not connected and require many inefficient transports" of dangerous nuclear material. The sprawling, inefficient Complex is more than twice as large as needed for "future NNSA missions and functions at Y-12," which require "approximately 2.2 million square feet of space versus the 5.3 million square feet utilized today."

36. The sprawling Y-12 Complex is highly contaminated. As the Department of Energy's Inspector General ("IG") stated, "[f]ifty years of nuclear weapons production and energy research in the United States during the Manhattan Project and Cold War generated large amounts of radioactive wastes, spent nuclear fuel, excess plutonium and uranium, thousands of contaminated facilities, and contaminated soil and groundwater." The dangerous wastes at the

Y-12 Complex include, according to NNSA, "radioactive, polychlorinated biphenyl (PCB), hazardous, mixed (both radioactive and hazardous), sanitary, and industrial" wastes. Although the entire Oak Ridge Reservation, including the Y-12 Complex, was designated as a Superfund site in 1989, it has never been entirely cleaned up, and a great deal of nuclear waste and other hazardous waste remains onsite.

37. Many aging, obsolete buildings at Y-12 themselves pose problematic waste disposal problems. For example, the "9201-05 Alpha Facility" at Y-12, which was built in 1944 and housed operations involving uranium, beryllium, and mercury, has been described by the NNSA as "the worst of the worst" aging facilities, and by the Department of Energy's IG as "one of the greatest liabilities in the Department's complex." The IG further noted that "[s]ince it ceased operations in 2005, this highly contaminated facility has experienced significant degradation." Although the NNSA removed "a portion of the legacy waste" from this facility, the IG reports that "since cleanup efforts were performed . . . the facility has degraded at an increasingly alarming rate . . . [which] has resulted in significant water intrusion and the spread of radiological and toxicological contamination." The IG also noted that "this facility presents a high risk to the workers and the environment," including "the potential for an explosion or reaction associated with remaining contaminants." Facing this facility's alarming deterioration, NNSA has spent "more than $24 million in operating and maintenance costs" since 2008. The DOE's IG has stated that "demolition remains the only viable risk accepted standard." In short, this building is in such disrepair, and poses such a great environmental and safety risk, that it must be decontaminated and decommissioned. The following picture, from a 2015 report by DOE's IG, shows this highly contaminated building's "alarming" decay:

Alpha 5 Facility, post-Recovery Act cleanup effort. (2011)

Facility condition and degradation, including standing water and contaminated equipment. (2013)

Alpha 5 Facility post-Recovery Act cleanup effort. (2011)

Advanced degradation due to roof failures and water intrusion. (2013)

38. Many other buildings at the Y-12 Complex also need to be decontaminated and decommissioned. As the NNSA has stated, many of Y-12's "old and oversized facilities are costly to maintain and have no inherent value for future missions," and "[w]ith many aging facilities being declared excess to NNSA mission needs, a viable DOE/NNSA program needs to be implemented to disposition legacy facilities and materials. There are currently more than 1 million [square feet] of NNSA facilities at Y-12 available for [decontamination and decommissioning]."

39. A high security perimeter around the sprawling Y-12 Complex poses a challenge for the necessary decontamination and decommissioning of old, contaminated buildings, as well as the cleanup of legacy wastes across the Complex. A "Perimeter Intrusion Detection and

Assessment System" ("PIDAS") surrounds 150 acres at the Y-12 Complex, including many of the aging, contaminated buildings that require cleanup. The NNSA describes the PIDAS as "a combination of barriers, clear zones, lighting, and electronic intrusion detection, assessment, and access control systems." The need to enter and exit the highly protected area within the PIDAS, which requires high-level security clearances for all personnel, is an obstacle to the efficient decontamination and decommissioning of aging buildings and to the cleanup of legacy wastes.

C. Plans to Modernize the Y-12 Complex

40. Facing the many issues described above, the NNSA has repeatedly recognized the need to modernize Y-12, stating for example that "[i]n order to remain safe, secure, and effective, the U.S. nuclear stockpile must be supported by a modern physical infrastructure." Aging infrastructure poses increasing problems, as the NNSA has acknowledged: "While operational today, the reliability of the existing facilities will continue to erode because of aging facilities and equipment."

41. The NNSA has regularly prepared EISs that have addressed various aspects of the modernization of Y-12. For example, the NNSA prepared an EIS in 1996 regarding a decision to downsize Y-12; another EIS in 1996 regarding the storage of highly enriched uranium; another EIS in 1996 regarding the storage of nuclear weapons or nuclear weapon components; an EIS in 1997 regarding waste management; a Site-Wide EIS ("SWEIS") for Y-12 in 2001; and an EIS in 2008 regarding the decision to continue Y-12's principal missions while downsizing the Complex.

42. In 2008, as NNSA summarized, "DOE decided to maintain the existing national security missions at Y-12 and build a UPF in order to provide a smaller and modern highly-enriched uranium production capability to replace existing 50-year-old facilities." NNSA has

also stated that "[m]odernizing [Y-12's] old, over-sized, and inefficient infrastructure is a key strategic goal of Y-12."

43. In 2011, NNSA issued a Site-Wide Environmental Impact Statement ("SWEIS") analyzing options for modernizing the Y-12 Complex and a Record of Decision ("ROD") deciding to construct a modern Uranium Production Facility ("UPF"). The 2011 ROD committed to "construct and operate one new facility—a Capability-sized UPF." NNSA intended this one new building to house all the uranium production operations that are currently scattered across multiple aging buildings at Y-12. As NNSA stated in the ROD, "[t]he UPF w[ould] replace multiple aging facilities with a modern facility," and "[r]eplacing older, inefficient facilities with new facilities that incorporate modern safety, security and efficiency standards, would improve Y-12's ability to protect human health and the environment."

44. NNSA stated in the 2011 SWEIS that "[t]he goals and objectives of modernizing Y-12" included "consolidating and modernizing equipment and operation," "[r]educ[ing] the size of the Protected Area by 90 percent," "[i]mprov[ing] worker protection with an emphasis on incorporating engineered controls," and "[c]omply[ing] with modern building codes and environment, safety, and health [] standards."

45. In contrast to the existing buildings that do not comply with modern building and safety codes, the single new UPF building chosen by NNSA in 2011 would comply with modern seismic codes. As NNSA stated, "[t]he UPF would be constructed with . . . rigorous natural phenomena [] resistance design . . . using the most current seismic information available for the proposed UPF site." In sum, the NNSA in 2011 decided to replace aging, vulnerable buildings with a single, modern building that would be built to modern structural, seismic, environmental, and fire codes, thus providing a margin of safety that existing facilities simply cannot provide.

46. The NNSA's 2011 SWEIS acknowledged seismic risks to aging buildings at Y-12. As the SWEIS stated, "[a]n assessment of the structural adequacy of [many aging buildings] indicates they do not meet current codes and standards related to natural phenomena (NP) events (e.g. tornadoes and earthquakes)," which would be necessary for the buildings to "maintain occupant safety and continued operations with minimal interruptions." The SWEIS also acknowledged that if the agency were to continue to use these buildings, "they would require structural upgrades to bring the buildings into compliance." As the SWEIS further stated, "[f]or continued operations in the existing facilities, major investments would be required for roof replacements; structural upgrades; heating, ventilating, and air conditioning replacements; and fire protection system replacement/upgrades."

47. The 2011 SWEIS also acknowledged that the Defense Nuclear Facilities Safety Board ("DNFSB") had raised concerns about seismic risks at Y-12. The 2011 SWEIS stated that "[o]n March 15, 2010, NNSA received a letter from the [DNFSB] regarding seismic issues related to the design of the UPF . . . as well as one comment regarding potential internal blast effects" and that "NNSA will consider DNFSB comments in the UPF design process and will work with DNFSB to ensure all seismic issues are appropriately addressed." The SWEIS further stated that "NNSA's goal is to eliminate potential internal explosions in the UPF design process."

48. During its 2011 NEPA process, the NNSA considered but ultimately rejected an "Upgrade in-Place" alternative in which the agency would merely upgrade existing buildings. Under this alternative, the NNSA stated that "existing enriched uranium and nonnuclear processing facilities would be upgraded to contemporary environmental, safety, and security standards to the extent possible" and that "[t]he upgrade projects would include upgrade of a

number of building structures to comply with current natural phenomena criteria." Ultimately, however, the NNSA rejected the Upgrade in-Place Alternative. The agency noted that "[a]lthough existing production facilities would be modernized, it would not be possible to attain the combined level of safety, security and efficiency made possible by the UPF alternative." The NNSA also stated that building a new UPF rather than upgrading existing buildings "would decrease the overall Y-12 facility accident risks . . . because many of the operations and materials in the existing Y-12 nuclear facilities would be consolidated into a UPF, reducing the accident risks associated with those older facilities."

49. The 2011 SWEIS also stated that constructing a new, modern, smaller UPF would have the benefit of allowing the NNSA to shrink the highly protected area at Y-12, allowing for easier cleanup of contaminated facilities. The 2011 UPF design would allow the highly protected area to decrease from 150 acres to 20 acres. As the 2011 SWEIS stated, "[w]hen the new PIDAS is completed, the existing [enriched uranium] operations would be relocated to the new facility, the current [enriched uranium] facilities could be declared surplus, and evaluated for [decontamination and decommissioning]." The following image, from the NNSA's "Ten-Year Site Plan" for Y-12 illustrates how the highly protected area would shrink under the 2011

UPF design, dramatically facilitating cleanup of a large portion of the Y-12 Complex:

50. In sum, in 2011, the NNSA recognized the need to modernize the Y-12 facility, analyzed several alternatives, and decided to construct a single, modern uranium production facility, which would have the benefits of ending the agency's risky reliance on aging, vulnerable buildings and shrinking Y-12's protected area to facilitate the cleanup of aging, contaminated buildings and legacy nuclear and hazardous waste.

D. <u>Rising Costs And Increasing Delays</u>

51. The NNSA's 2011 decision to construct a new UPF soon faced problems due to design difficulties and cost increases. In 2013, the U.S. Government Accountability Office ("GAO") issued a report on "Factors Leading to Cost Increases with the Uranium Production Facility." That GAO report noted that although the NNSA initially estimated that constructing the new UPF would cost roughly $1.1 billion, that figure was based on the costs the agency incurred in constructing a uranium *storage* facility and failed to take into account the important differences between a facility to *store* uranium and a facility designed for the far more complex

task of *processing* uranium for use in nuclear weapons. Consequently, between 2004, when the NNSA first contemplated the cost of the new UPF, and 2012, "the upper bound of the UPF's cost range [] increased from approximately $1.1 billion . . . to $6.5 billion." The GAO further stated that "[o]verly optimistic NNSA assumptions about the UPF contained in multiple cost estimates . . . [we]re the primary factors that contributed to its cost increases."

52. The cost of the UPF further increased in 2012 due to a serious design flaw with the facility. As the GAO noted, the NNSA's contractor for the UPF revealed that the equipment used to process uranium would not actually fit into the facility as then designed. The GAO stated that "[i]n August 2012, the UPF contractor concluded that the UPF's roof would have to be raised 13 feet and that the start of construction would be further delayed" in order to "ensure the processing equipment would fit into the facility." This design defect led to a further increase in cost of $500 million and a one-year delay of construction.

53. The UPF project then faced further cost increases. According to a 2016 presentation by the Department of Energy, further design refinements and increases in the cost of necessary commodities increased the cost of the project by roughly another $1 billion, and reduced congressional funding delayed construction, further increasing costs by roughly another $2 billion.

54. Ultimately, taking into account the various cost increases, the NNSA estimated that the construction of the new UPF facility would cost between $10 billion and $12 billion.

E. <u>Facing Mounting Costs, The NNSA Re-Designs the UPF Without Public Input.</u>

55. As the costs for the single-building UPF design reached between $10 billion and $12 billion, in 2014 the "NNSA recommended alternative design approaches." As the NNSA stated, "in 2014 NNSA decided to stop design efforts on the single-structure Capability-sized

UPF" and instead developed a new design. Instead of a single new building housing all uranium production activities at Y-12, the NNSA decided to build three smaller buildings and to continue to use various existing, but deteriorating, buildings at Y-12.

56. Although the NNSA has not provided the public with definitive information regarding how long it intends to continue using all the aging buildings with known structural problems at the Y-12 Complex, the agency has made clear that it intends to use some of these buildings for at least another 25 years. The NNSA has also stated that it does not plan to begin demolition of Building 9212, which shows significant degradation and poses a serious risk of collapse, until 2028. The time horizon for the NNSA removing operations from other deteriorating facilities has, according to the NNSA, "been deferred" until an undisclosed date.

57. The NNSA's process for re-designing the UPF at Y-12 was not open to public comment or input. Although the NNSA convened a so-called "Red Team" to evaluate new design options, the NNSA did not solicit nominations from the public, nor did the Red Team hold any public hearings or information sessions. In order to obtain the Red Team Report, Plaintiffs OREPA and Nuclear Watch had to file a Freedom of Information Act request.

58. When they learned that NNSA was contemplating a new design, Plaintiffs OREPA and Nuclear Watch wrote to then NNSA Administrator Frank Klotz to request that the agency prepare a new EIS based on the new UPF design, but the NNSA never responded to this request. (This request was distinct from the Oak Ridge Petition described in detail in ¶¶ 95–102.)

F. Updated Seismic Hazard Maps Reveal Greater Earthquake Risk in 2014.

59. In 2014, the United States Geological Survey ("USGS") released a set of seismic hazard maps that reflect improvements in data, modeling, and methods of estimating seismic risks made since the USGS's prior release of hazard maps in 2008. As the USGS stated,

"[m]any new input datasets, models, and methods were implemented in this update," including a "Central and Eastern U.S. Seismic Source Characterization for Nuclear Facilities . . . project [which] developed a new Central and Eastern U.S. source model." Consequently, the USGS further stated that "[t]he 2014 updated hazard maps differ from the 2008 maps in complex ways."

60. The USGS stated that "[t]he 2014 national seismic hazard maps apply the best available science" and constitute the "assessment of the best-available data, models, and methods for seismic hazard assessment." The USGS specifically noted that "[b]ecause these maps affect public safety and economic vitality, the USGS national seismic hazard maps include only earthquake science that is accepted by the science community."

61. The USGS seismic hazard maps "have provided the basis for many public and private policies regarding earthquakes, including seismic-design regulations for buildings, . . . building codes, to identify areas where built structures are likely to experience large seismic loads" and to provide a means whereby "structures can be built to a standard that will enable critical activities and resources . . . to continue with less disruption following an earthquake." The USGS also noted that its hazard maps affect "governmental disaster management and mitigation strategies . . ., planning and seismic safety applications (for example, the . . . Nuclear Regulatory Commission), and many site-specific engineering analyses by industries and governments (such as those applied by the U.S. Department of Defense . . .)."

62. The USGS's updated 2014 seismic hazard maps indicate that the Y-12 site faces a greater risk of a large earthquake than the USGS believed was the case in 2008. In particular, the 2008 maps had indicated a 2% probability over 50 years of an earthquake exceeding peak ground acceleration of 0.2g, but the 2014 maps indicated a similar degree of probability of an earthquake

exceeding peak ground acceleration of 0.3g. In other words, the 2014 seismic hazard maps revealed that the vicinity of Y-12 risks experiencing an earthquake of 50% greater magnitude than the 2008 maps had indicated.

G. The DNFSB Issues a Structural Evaluation of Aging Y-12 Buildings.

63. The Defense Nuclear Facilities Safety Board ("DNFSB") is a federal agency Congress created to "review and evaluate standards relating to the design, construction, operation, and decommissioning of defense nuclear facilities," to "investigate practices or events at such facilities that may adversely affect public health and safety," and to "recommend measures . . . that are, in the Board's view, necessary to ensure adequate protection of public health and safety." *Energy Research Found. v. Def. Nuclear Facilities Safety Bd.*, 917 F.2d 581, 582 (D.C. Cir. 1990). In November 2014, the DNFSB issued "Structural Evaluations of the 9215 Complex and Building 9204-2E at the Y-12 National Security Complex." On February 4, 2015, the Vice Chairman of the DNFSB sent that report directly to the Manager of the NNSA Production Office in Oak Ridge, with a cover letter that specifically noted that "Building 9204-2E and the 9215 Complex have known structural performance deficiencies and do not meet modern structural design requirements." The cover letter further noted that "[t]hese deficiencies result in an increased potential for structural collapse and release of radiological material following certain seismic events." The letter noted that the NNSA had accepted this risk when it intended to replace the buildings with a new UPF, but that "following an evaluation of alternative approaches for the UPF project in early 2014, NNSA removed the capabilities of Building 9204-2E and the 9215 Complex from the UPF project scope," meaning that the NNSA intended to continue to use these structurally deficient buildings. The cover letter specifically

stated that the staff report was "enclosed for your information and use as you and your staff re-evaluate these facilities for possible lifetime extension and mission capability additions."

64. The DNFSB review noted that the NNSA had changed its approach from the 2011 UPF design to continue to rely on the aging, structurally unsound Building 9204-2E and 9215 Complex. As the DNFSB stated, "[r]ecent issues with the UPF project's cost and schedule caused NNSA to . . . chang[e] its approach to rely on the deployment of new capabilities in Building 9204-2E and the 9215 Complex to support transition out of Building 9212, which is the highest hazard nuclear facility at Y-12 and is in poorer condition than Building 9204-2E or the 9215 Complex. The newly selected approach also caused the timetable for transitioning operations out of the 9215 Complex and Building 9204-2E to slip to an undetermined date." In other words, the DNFSB noted that the NNSA now intended to use these structurally unsound buildings for an undisclosed amount of time.

65. The DNFSB review "focused on the structural calculations and drawings to identify gaps between these facilities' designs and modern seismic design practices." The review then identified significant gaps that make these buildings vulnerable to earthquakes. For example, the review noted that "[t]he designs of the 9215 Complex and Building 9204-2E do not include the ductile design concepts that are used in modern structural design, and thus lack seismic margin to collapse compared to a contemporary structure designed to the same demands." The review further stated that "[s]hould seismic demands exceed the elastic capacity of certain structural members, undesirable failure modes may be triggered such as column or joint failures that can rapidly lead to progressive collapse."

66. The DNFSB review also revealed "safety significant" deficiencies in the 9215 Complex, which the NNSA intends to continue to use, noting for example that the bracing and

masonry of this building "would be severely damaged" in a large earthquake and that "the demands on the 9215 Complex structural elements exceeded capacities in a number of locations."

67. The DNFSB specifically noted the risk that the 9215 Complex could collapse in an earthquake. In particular, the DNFSB stated that "under a site-specific earthquake of approximately 0.12g peak ground acceleration, significantly below the [relevant standard for] existing facility seismic demand, the 9215 Complex structures will have reached a damage state where progressive collapse of the structure is likely, damaging or destroying many if not all areas of the structure as a result." Notably, the size of an earthquake that will "likely" lead to "progressive collapse" is significantly weaker than the earthquake that the USGS warned could happen in the area: the DNFSB stated that the 9215 Complex would likely collapse under 0.12g peak ground acceleration, while the USGS warned that the area features a risk of an earthquake with 0.3g peak ground acceleration.

68. With regard to the 9215 Complex, the DNFSB also criticized the design criteria that the NNSA had used to evaluate structural integrity, noting that "the current In-Structure Response Spectra [] used to qualify equipment in the 9215 Complex are most likely inappropriate considering the nonlinear behavior of the structure." Consequently, the DNFSB called on the NNSA to utilize more advanced techniques for determining risks to this Complex: "If NNSA intends to consider retrofits to the structure or re-evaluate it to better quantify and understand the risk of collapse, more advanced analysis techniques should be pursued to determine building performance and the complete set of areas requiring retrofit."

69. The DNFSB provided a highly specific list of issues that the NNSA should consider if it intends to continue using the 9215 Complex (which NNSA does), calling on the

NNSA to utilize a "nonlinear analysis" to "capture the effects of connection response, brace overstrength, redistribution of loads after damage, degradation of structural elements with cyclical loads, and the variations of damping in the system; determine which braces might exhibit nonlinear behavior prior to failure; account for asymmetric stiffness and capacity of slender braces; and account for the complex behavior of masonry infilled walls."

70. The DNFSB also suggested specific repairs that should be made to the 9215 Complex, noting that "[m]eeting modern code requirements would require replacing a large number of brace members in the 9215 Complex" and that "every gusset plate of the lateral bracing system would need to be replaced." The DNFSB noted that "[t]he site has not performed retrofits because its priorities for facility improvements have been made based on the assumption that the 9215 Complex would be replaced by UPF in the near future," but suggested that such repairs would likely be necessary given that the NNSA intends to continue using the 9215 Complex until "an undetermined date."

71. Similarly, the DNFSB noted significant deficiencies in Building 9204-2E, which the NNSA has suggested will be used for "at least 25 years." According to the DNFSB, "Building 9204-2E does not have shear reinforcement in beams and columns as required by [modern] codes to develop the full plastic moment strength of these elements or to confine concrete adequately," because the building "predates modern seismic detailing codes." The DNFSB specifically suggested that "[a]ny re-examination of the modeling assumptions used for Building 9204-2E should consider a more refined modeling of this region to better predict shear and moment demands."

72. The DNFSB also criticized the modeling technique that the NNSA used to assess the risk of continuing to use Buildings 9215 and 9204-2E. Specifically, the DNFSB stated that

"the evaluations for the 9215 Complex and Building 9204-2E are both using what the review team believes is an inappropriate level of hazard reduction." The DNFSB further stated that "NNSA's recent decision to reduce the scope of the UPF project has rendered invalid some of the current assumptions associated with the risk of continued operation of these facilities, particularly their remaining operational lifetime."

73. Consequently, the DNFSB urged that the NNSA improve its analysis of the risk of continuing to use these buildings in specific ways: "NNSA and CNS [Consolidated Nuclear Security, LLC, the contractor for the Y-12 modernization] should consider, as part of this re-evaluation, applying the increased seismic loads required by the latest version of DOE Standard 1020 for existing facilities while utilizing more advanced nonlinear analysis techniques, in particular for the 9215 Complex. Such an approach would provide those responsible for re-prioritizing the risk-reduction projects for these facilities a better representation of the risk presented by the 9215 Complex's structural deficiencies."

74. The DNFSB report concluded with a significant criticism of the NNSA's evaluation of the risk of continued use of these buildings: "NNSA presently plans to operate both the 9215 Complex and Building 9204-2E well beyond what was originally predicted during the early stages of the UPF project. In addition, new processing capabilities are being considered for deployment in these existing facilities. With the remaining operational life of these two buildings now approaching the life assumed for new designs, the review team believes that NNSA should consider performing an updated analysis using more accurate nonlinear modeling techniques while applying the requirements of DOE Standard 1020-2012. The current evaluations of the 9215 Complex and Building 9204-2E do not consider the large extension of their operational

lifespans and fail to explicitly acknowledge the impact of the lack of structural ductility on each building's design margin, particularly for the 9215 Complex."

H. The Department of Energy's Inspector General Notes "Ever-Increasing Levels of Risk" From Aging Contaminated Buildings.

75. In January 2015, the Department of Energy's IG issued a report titled "The Department of Energy's Management of High-Risk Excess Facilities." This report noted that numerous NNSA facilities pose a significant risk to the environment, workers, and the public. Specifically, the IG described "a number of [NNSA] facilities in poor condition that were categorized as excess or in shutdown mode without definitive plans for D&D activities." The IG further noted that "degradation within these facilities ranged from failures in critical structural components to high levels of contamination" and that "several of these facilities posed significant health and safety risks to Department employees and the public."

76. The IG Report stated that "many of these facilities continue to deteriorate and pose increasing risks to mission, workers, the public and the environment," and that "[d]elays in the cleanup and disposition of contaminated excess facilities expose the Department, its employees and the public to ever-increasing levels of risk."

77. The IG also explained that despite the fact that "[t]he longer these facilities remain unaddressed, the further they degrade, and the more dangerous and costly they are to maintain or disposition," the NNSA "had not developed a strategic, integrated approach that focused limited budgetary resources on a risk basis." Indeed, with particular relevance to the NNSA's decision to prolong the use of aging buildings at Y-12 for an undetermined amount of time the IG noted that "officials told us that they have been unable to effectively plan for the maintenance and deactivation of excess facilities due to the uncertainty about the length of time they will be required to maintain the facilities."

78. With particular relevance to the NNSA's structurally deficient buildings at Y-12, the IG specifically noted that "a number of the facilities are located in areas where there is a realized risk of natural disasters."

I. The NNSA Prepares a Supplement Assessment and Amended Record of Decision.

79. Plaintiffs OREPA and Nuclear Watch learned that the NNSA had decided to prepare a Supplement Assessment ("SA") for its new UPF design when they read a reference to a draft of the SA in another NNSA document. Despite Plaintiffs OREPA and Nuclear Watch having written to the NNSA to request that the agency prepare an EIS for the new UPF design, the NNSA failed to respond rather than informing OREPA and Nuclear Watch of its intent to instead produce an SA.

80. On March 2, 2015, Plaintiffs OREPA and Nuclear Watch filed a Freedom of Information Act request for any SA regarding the UPF. On March 10, 2015, the NNSA declined to produce any documents in response to this request, instead stating that the agency was then preparing an SA and that it would be made public after its completion at a date "unknown at this time."

81. In April 2016, the NNSA issued its "Supplement Analysis For The Site-Wide Environmental Impact Statement for the Y-12 National Security Complex" ("2016 SA"). The 2016 SA stated the NNSA's intent to develop a UPF with "a hybrid approach of upgrading existing [enriched uranium] facilities and building new UPF facilities." The 2016 SA stated that the reason for the new design was to "provide cost-saving opportunities in both building construction and equipment installation."

82. The 2016 SA stated that the NNSA would relocate some activities from aging, degrading facilities into new facilities, while also continuing to use other aging buildings. The

SA specifically noted that the agency intended to construct "a modern facility comprised of multiple buildings to replace a subset of the capabilities currently located in Building 9212," and that "[t]he UPF design includes those processes that cannot be transitioned to or sustained in enduring Y-12 facilities."

83. The 2016 SA specifically stated that the NNSA had already determined its course of action two years before issuing the SA: "In 2014 NNSA decided to stop design efforts on the single-structure Capability-sized UPF, and instead developed the proposed action," which received no NEPA analysis until the agency prepared the 2016 SA.

84. The SA stated that the NNSA would continue to use various aging, degrading buildings. It noted that "mission-critical existing and enduring facilities and infrastructure will be maintained and upgraded through an extended life program" and that "a new facility will be built to house those processes that cannot be sustained in existing, enduring facilities or through process improvements." Specifically, the SA made clear that the NNSA would continue to use Buildings 9995, 9998, 9215, and 9204-2E, all of which were "to be eliminated" under the 2011 ROD. Even with regard to Building 9212, which the DNFSB described as "the highest hazard nuclear facility at Y-12," the SA confirmed that its new design would only commit to transferring activities out of this building "no later than 2025."

85. The SA acknowledged that upgrades to aging buildings would be necessary, including HVAC, electrical, and fire suppression improvements. The SA stated that the NNSA would make "internal modifications to the existing facilities that would improve worker safety and reduce mission risk." The SA further stated that "[t]he upgrades would consist of "(1) facility electrical upgrades; (2) ventilation and exhaust upgrades; (3) fire suppression upgrades; and (4) process and laboratory equipment upgrades or replacement."

86. Although the 2016 SA recognized that "[i]n varying levels of severity, Buildings 9204-2E, 9212, and 9215 face ceiling, wall, and exterior façade degradation due to chemical corrosion and water intrusion," the SA did not state that the NNSA would actually repair this structural degradation. Instead, the SA stated that it would utilize "[a]dministrative controls such as limiting access or requiring the use of hard hats." The SA stated that "[b]roader evaluations . . . must be pursued to support current operations and the strategy" but did not engage in any such "broader evaluation."

87. The SA did not evaluate the NNSA's continued use of aging facilities in light of the USGS's updated 2014 seismic hazard maps, which had revealed increased odds of a large earthquake in the region. The SA did mention the seismic hazard maps, but only analyzed their relevance for *new* facilities. In particular, the SA stated that "[a]lthough different, the new USGS seismic hazard map does not change the site-specific seismic data at Y-12 which is used to determine facility design and construction requirements. The site-specific design-basis earthquake spectra that would be factored into the requirements for any *new* UPF buildings has been conservatively developed, and contains margin to address both current requirements and possible future modification of the spectra input, such as the input from the recent USGS seismic hazard changes. Any *new* facilities would be designed and constructed in accordance with all applicable requirements . . . ." (emphases added). The SA did not address the use of *existing* buildings in light of the revised USGS seismic hazard maps.

88. The SA did not utilize any of the improved modeling techniques that the DNFSB recommended with regard to existing buildings. In particular, the DNFSB had called for "an updated analysis using more accurate nonlinear modeling techniques while applying the requirements of DOE Standard 1020-2012," and had noted that "[t]he current evaluations of the

9215 Complex and Building 9204-2E do not consider the large extension of their operational lifespans and fail to explicitly acknowledge the impact of the lack of structural ductility on each building's design margin." The SA did not evaluate any of these issues.

89. The SA did not discuss the DNFSB report, nor does the DNFSB report appear in the SA's list of references. Prior to the release of the 2016 SA, the DNFSB identified both the 9215 Complex and Building 9204-2E as having significant structural defects that pose safety risks, especially in the event of an earthquake. In the 2011 SWEIS, the NNSA stated that "NNSA will consider DNFSB comments in the UPF design process and will work with DNFSB to ensure all seismic issues are appropriately addressed." Nevertheless, the 2016 SA did not discuss the DNFSB report, did not conduct the analysis the DNFSB recommended, and did not state that NNSA would conduct the structural retrofits of these buildings that the DNFSB had recommended.

90. The SA did state that the NNSA would not bring existing facilities into compliance with modern seismic or building codes. The SA specifically stated that "[w]ith regard to seismic hazards, it would be prohibitively expensive to upgrade 50+ year old facilities to current seismic standards. As such, the plan is not to bring the long-range Y-12 Enriched Uranium facilities to current seismic standards, but to improve worker safety and reduce mission risk." This new approach is notably different from the 2011 SWEIS, which had stated that under an "upgrade in place" alternative, "existing enriched uranium and nonnuclear processing facilities would be upgraded to contemporary environmental, safety, and security standards to the extent possible" and that "[t]he upgrade projects would include upgrade of a number of building structures to comply with current natural phenomena criteria." The SA did not discuss the significant difference in routine operational hazards and severe accident risks between the 2011

approach of upgrading these buildings to comply with modern codes, and the 2016 decision not to upgrade these buildings due to cost.

91. The SA did not analyze how the decision to continue to use existing buildings would impair cleanups at Y-12 by requiring retention of a large protected area, in comparison to the 2011 decision to shrink the protected area. The SA did acknowledge the difference, stating that "under the Capability-sized UPF alternative, the Y-12 SWEIS included an action to reduce the PIDAS footprint by 90 percent at the Y-12 site" and that "[t]his action would not occur under the proposed action because some existing (upgraded) EU facilities would continue to be utilized during operations." However, the SA did not analyze how retention of the larger protected area impairs the necessary decontamination and decommissioning of aging, contaminated buildings or the cleanup of legacy wastes at Y-12.

92. The SA did not mention the Department of Energy's Inspector General report, which had noted that "[d]elays in the cleanup and disposition of contaminated excess facilities expose the Department, its employees and the public to ever-increasing levels of risk." The SA did not discuss the IG's report, nor does the IG's report appear in the SA's list of references.

93. The SA concluded that "[o]n the basis of the comparative analysis of the proposed action in relation to the analysis in the SWEIS, NNSA has determined that there are no currently identified significant new circumstances or information relevant to environmental concerns that warrant preparation of a supplemental or new EIS," and that "no further NEPA documentation is required."

94. On July 12, 2016, the NNSA issued an Amended Record of Decision ("AROD") stating that the NNSA "decided to separate the single-structure UPF design consisting of multiple buildings." The AROD confirmed that the change in the design came about "as a result

of concerns about UPF cost and schedule growth." The AROD, in short, committed the NNSA to a design that it had settled on two years prior, without engaging in a thorough NEPA review of its proposed action.

J. The NNSA Summarily Denies Plaintiff OREPA and Nuclear Watch's Petition to Prepare an SEIS.

95. On October 27, 2016, Plaintiffs OREPA and Nuclear Watch sent the NNSA the detailed Oak Ridge Petition describing how the agency's 2016 AROD "is a significant change" from the 2011 ROD and petitioning the NNSA and DOE to prepare a new SWEIS or an SEIS.

96. The Oak Ridge Petition noted the significant difference between a plan to build a single, modern UPF facility and the new decision to build several new buildings and to continue to use existing buildings with known, significant structural defects. The Petition also noted that the 2016 SA confirmed that the NNSA no longer planned to bring existing facilities into compliance with modern building codes, effectively abandoning an important aspect of the plan announced in the 2011 ROD.

97. The Petition specifically described significant new information that the NNSA had failed to properly analyze in the 2016 SA and that demonstrated the need to prepare an SEIS, including:

a. The USGS's updated seismic hazard maps;

b. The DNFSB's report on known structural defects in aging facilities at Y-12;

c. "[t]he discovery in February 2014 of a heretofore unknown field of radioactive debris during site preparation activities for the UPF";

d. "news reports indicat[ing] workers involved in site preparation have encountered unexpected contaminated debris on at least fifty occasions"; and

e. The 2015 DOE IG report that noted "an ever-increasing risk to workers and the public" from delays in cleaning up aging, contaminated facilities.

98. The Oak Ridge Petition specifically called on NNSA to analyze how its new 2016 AROD would make it more difficult to decontaminate and decommission existing buildings or to clean up legacy waste at Y-12, noting that retention of an extensive security perimeter would make environmental remediation more difficult.

99. The Petition called on the NNSA to prepare a new SWEIS or an SEIS which "must include a full analysis of the new 'preferred option' for continuing uranium enrichment operations—the new UPF and the continued use of aging facilities which fail to meet current safety standards—and the foreseeable consequences arising from the failure to implement the decision formally recorded in the 2011 ROD and published in the Federal Register."

100. The Petition specifically explained that "NNSA faced an analogous situation at the Los Alamos National Laboratory [], where a similar decision to abandon the 'big box' approach for the Chemistry and Metallurgical Research Replacement Nuclear Facility [] led to the preparation of a [SEIS]," which the petition noted "provides strong precedent for why NNSA should prepare a Supplemental Y-12 SWEIS as well."

101. The Petition also stressed the importance of public participation in the NEPA process and lamented that "[s]ince 2013, when the 'big box' UPF as described in the 2011 [ROD] was abandoned, the NNSA's planning process has assiduously excluded the public." Specifically, the Petition stated that the chronology of the UPF re-design, described in detail above, "demonstrates three things: the persistent efforts of the public to communicate concerns to NNSA (which were met with silence); the complete failure of DOE and NNSA to provide any opportunity for public input during a three-year process; and the failure of DOE and NNSA to

provide any information about its planning process to the public without being compelled by FOIA."

102. The Oak Ridge Petition concluded by "formally request[ing] that NNSA prepare a new Y-12 SWEIS."

103. On December 22, 2016, the NNSA issued a one-paragraph denial of the Oak Ridge Petition. The NNSA's denial stated that "[t]he [NNSA] is conducting a thorough planning process that is in full compliance with all relevant [NEPA] laws and regulations, including the Department of Energy's NEPA regulations. The agency's decision to conduct a Supplement Analysis of the existing [SWEIS] is in full compliance with the relevant Department of Energy regulations on the subject found at 10 C.F.R. § 1021.314."

104. The NNSA's denial of the Oak Ridge petition did not discuss any of the new information that the Petition had requested that the agency analyze, including the USGS's new seismic hazard maps, the DNFSB report, or the DOE's IG report. The NNSA's denial did not discuss how retention of a large security perimeter would impair environmental cleanups at Y-12, and did not analyze the risk of continuing to use aging buildings.

K. The DNFSB Confirms Ongoing Safety Risks.

105. On March 16, 2017, the DNFSB issued a report on the "Y-12 National Security Complex Extended Life Program Safety Strategy." This 2017 DNFSB report confirms that the Y-12 Complex continues to face significant safety risks with regard to "facility structures, nuclear criticality safety, and confinement."

106. The March 2017 DNFSB report confirms that "certain uranium processing operations . . . will remain in the existing 9215 Complex and Building 9204-2E for at least 25 more years," and that "[t]he 9215 Complex facility structure cannot withstand certain design

basis events commensurate with its safety significant designation." In other words, the 2017 DNFSB report confirms that NNSA will continue using aging buildings for the processing of nuclear weapons despite the fact that these buildings will likely collapse in the event of an earthquake.

107. The March 2017 DNFSB report further confirms that the NNSA will not upgrade existing buildings to comply with modern seismic codes or contemporary DOE regulations. Instead, the March 2017 DNFSB report notes that the NNSA will "add discussion of the reanalysis and potential upgrades to the next safety strategy revision to codify the path forward." However, according to the report, such analysis will likely not occur before 2020.

108. The March 2017 DNFSB report also confirms that if aging buildings at Y-12 were to collapse in an earthquake, "nuclear materials could be affected in such a way as to make criticality accidents credible." The report further states that "nuclear criticality safety analyses are unable to demonstrate that processes remain subcritical following certain design basis events in both the 9215 Complex and Building 9204-2E"—i.e., an earthquake would likely cause these buildings to collapse, thus triggering a nuclear criticality event releasing radiological materials. Nevertheless, the report states that the NNSA is not requiring any further analysis of nuclear criticality until 2020: "criticality safety analyses are anticipated to begin in the 2020 timeframe."

109. The March 2017 DNFSB report also states that the aging facilities at Y-12 could not likely contain the release of radiological materials such as uranium dust from a nuclear criticality accident. The DNFSB has stated that an uncontained release of such materials could have "significant radiological consequences" including "potentially serious public consequences." The DNFSB's March 2017 report explains that "[n]either Building 9204-2E nor the 9215 Complex have active confinement ventilation systems, and both facilities would face

loss of passive confinement capability following certain design basis events." The report also states that "the means by which [NNSA's contractor] will demonstrate that the facilities maintain confinement following design basis events remained unclear."

110. On June 26, 2017 the DNFSB sent another letter to the NNSA describing "opportunities for improvement related to the UPF safety strategy for fire protection." That June 2017 DNFSB letter identified "weaknesses in the revised fire safety strategy resulting from the elimination of thermal barriers and deficiencies in compliance with industry codes and standards."

111. The June 2017 DNFSB letter noted that the UPF's fire suppression system "is not classified as a safety system" despite the fact that "the UPF design relies on it to prevent accidents with the highest unmitigated consequences," including "a nuclear criticality accident that follows a design basis seismic event." The June 2017 DNFSB letter also explained that the fire suppression system is especially important because the NNSA has "eliminated most thermal barriers from the UPF design," which had originally been included "to prevent a criticality accident by protecting fissile material from a post-seismic fire." The DNFSB further stated that "it would be prudent to designate the [fire suppression system]" as safety-significant because that would require compliance with relevant quality assurance codes, "would require surveillance of this system under Technical Safety Requirements," and would provide "increased rigor [that] will increase confidence that the [fire suppression system] can perform its required safety functions during and following design basis accidents" such as a large earthquake.

112. The June 2017 DNFSB letter further noted that "functionality of the [fire suppression system] after the design-basis seismic event cannot be guaranteed." The DNFSB also stated that the new UPF design's fire suppression system "will not guarantee functionality of

deformation-sensitive equipment, such as a fire pump, after the design basis seismic event." In other words, according to the report, after a large earthquake, the UPF's fire suppression pumps face a significant risk of not working at all.

113. The June 2017 DNFSB letter also described problems with "gloveboxes" at the UPF. Generally, gloveboxes are systems that are supposed to allow for the safe storage and handling of dangerous materials. At the UPF, according to the DNFSB, "[g]loveboxes that contain material-at-risk [i.e. hazardous nuclear weapons components] serve as the primary confinement boundary for UPF." The DNFSB noted that relevant industry standards, and DOE regulations, typically "require the use of non-combustible glovebox windows," but that "the UPF project plans to use a combustible material without demonstrating fire performance equivalent to non-combustible materials." The June 2017 DNFSB letter further explained that "the currently specified material for glovebox windows could melt when exposed to fire, resulting in a breached primary confinement." In other words, the UPF's primary confinement system for nuclear materials could melt or burn in a post-earthquake fire, leading to a loss of confinement of hazardous nuclear materials.

114. The March 2017 DNFSB report makes clear that in the event that an earthquake causes a structural failure triggering a nuclear criticality accident, radioactive material would not likely be contained. The June 2017 DNFSB letter confirms that the new UPF design does not have adequate systems to guarantee suppression of a post-earthquake fire or containment of nuclear materials during or after such an event. The NNSA's 2011 SWEIS also stated that "radiological accidents" at Y-12 could impact "the general population residing within a 50-mile radius," which is an area including the entirety of Knoxville, Tennessee, home to more than 180,000 people.

PLAINTIFFS' CLAIMS FOR RELIEF

Violations of NEPA and Administrative Procedure Act

115. Plaintiffs incorporate the allegations set forth in paragraphs 1–114.

116. In light of the significant changes in the NNSA's design of the UPF between 2011 and 2016, and in light of the significant new information provided by the USGS's updated seismic hazard maps, the DNFSB's report on the structural deficiencies in aging buildings at the Y-12 Complex, and the DOE's IG report on the "ever-increasing" risk to the public from delays in the decontamination and decommissioning of aging facilities, which was all described in the Oak Ridge Petition, by summarily denying the Oak Ridge Petition and by declining to prepare an SEIS or a new SWEIS without analyzing any of the information or issues presented in the Oak Ridge Petition, Defendants violated NEPA and implementing regulations and acted arbitrarily, capriciously, and not in accordance with law, and have also abused their discretion and failed to comply with procedure required by law, violating the APA, 5 U.S.C. § 706(2).

117. By concluding in NNSA's 2016 SA that "there are no currently identified significant new circumstances or information relevant to environmental concerns that warrant preparation of a supplemental or new EIS" without considering the relevance of the new information in the DNFSB Report on structural deficiencies in aging buildings at Y-12 and the USGS's revised seismic hazard maps to the agency's decision to continue to use these aging, vulnerable buildings for the processing of nuclear weapons, Defendants violated NEPA and implementing regulations and acted arbitrarily, capriciously, and not in accordance with law, and have also abused their discretion and failed to comply with procedure required by law, violating the APA, 5 U.S.C. § 706(2).

118. By concluding in NNSA's 2016 SA that "there are no currently identified significant new circumstances or information relevant to environmental concerns that warrant preparation of a supplemental or new EIS" without considering the relevance of the DOE's IG report on the "ever-increasing" risk to the public from delays in the decontamination and decommissioning of aging facilities in combination with the new design's retention of a large security perimeter, which will likely impede necessary cleanups of contaminated facilities and legacy wastes, or considering how the new design and the retention of a large security perimeter may have site-wide impacts on the Y-12 Complex, Defendants violated NEPA and implementing regulations and acted arbitrarily, capriciously, and not in accordance with law, and have also abused their discretion and failed to comply with procedure required by law, violating the APA, 5 U.S.C. § 706(2).

119. Defendants' ongoing failure to prepare an SEIS where, in light of the information set forth in ¶¶s 51–114, one is legally required by NEPA and implementing regulations also constitutes agency action that has been unlawfully withheld and unreasonably delayed, in violation of section 706(1) of the APA, 5 U.S.C. § 706(1).

120. By determining the new design for the UPF in 2014, two years before engaging in any NEPA analysis of the new design, Defendants unlawfully predetermined the outcome of their decision-making process, depriving the public of the opportunity for any input into this important re-design project, and violating NEPA.

WHEREFORE, Plaintiffs respectfully request that this Court enter an Order:

1. Declaring the Defendants have violated the National Environmental Policy Act and the Administrative Procedure Act;

2. Vacating the NNSA's 2016 Supplement Assessment and 2016 Amended Record of Decision and remanding those decisions to the agency to prepare either a Supplemental Environmental Impact Statement or a new Site-Wide Environmental Impact Statement regarding the new design for the Uranium Production Facility at the Y-12 Complex;

3. Awarding Plaintiffs their reasonable attorneys' fees and costs in this action; and

4. Granting Plaintiffs any further relief as the Court may deem just and proper.

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Respectfully submitted

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